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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief

MONTHLY NEWS LETTER

WASHINGTON, D. C., November 20, 1930

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: HEREAFTER IT WILL NOT BE NECESSARY TO INSERT :
: ON VOUCHERS COVERING FIELD PURCHASES, THE GENERAL :
: REQUISITION NUMBERS THAT HAVE BEEN ASSIGNED QUARTERLY :
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: SUPPLEMENT No. 6 OF GENERAL REGULATIONS No. :
: 51 FROM THE GENERAL ACCOUNTING OFFICE, DATED AUGUST :
: 20, 1930, REGARDING STANDARD FORM No. 1036 (REVISED), :
: ABSTRACT OF AGREEMENT, REQUIRES THAT IF NOTICES ARE :
: NOT POSTED IN PUBLIC PLACES IN ADDITION TO ADVERT :
: TISING BY CIRCULAR LETTERS (BID FORMS) SENT TO :
: DEALERS, EXPLANATION OF FAILURE TO POST THE NOTICES :
: MUST BE MADE. IT IS DESIRED THAT THIS REQUIREMENT :
: BE FOLLOWED STRICTLY IN ORDER TO PREVENT EXCEPTIONS :
: BY THE GENERAL ACCOUNTING OFFICE. (DIVISION OF :
: CONTROL MEMO. NOVEMBER 12, 1930). :
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: THE ATTENTION OF THE FIELD MEN IS CALLED TO :
: THE NECESSITY OF AT ONCE DISCARDING ALL OLD EXPENSE :
: ACCOUNT AND OTHER OBSOLETE FORMS. IN TWO INSTANCES :
: RECENTLY EXPENSE ACCOUNTS HAVE BEEN SUBMITTED ON OLD :
: FORMS WHICH HAS NECESSITATED RETURNING THE ACCOUNTS :
: TO THE MEN THUS CAUSING UNNECESSARY DELAY. REIMBURSE- :
: MENT ACCOUNT STANDARD FORM 1012, APPROVED MAY 3, :
: 1929 SHOULD BE USED. (DIVISION OF CONTROL MEMO. :
: NOVEMBER 12, 1930.) :
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: THE ORGANIZATION OF THE DIVISION LIBRARY HAS :
: REACHED THE POINT WHERE WE ARE IN A POSITION TO MAKE :
: SEARCHES AND SUPPLY INFORMATION ON ANY SUBJECT RE- :
: LATING TO THE WORK OF THIS DIVISION. THE MEN IN THE :
: FIELD SHOULD TAKE ADVANTAGE OF THESE FACILITIES IN :
: CONNECTION WITH GOING PROJECTS AND NEW PROJECTS. :
: MORE USE SHOULD BE MADE OF THE LIBRARY FACILITIES :
: AVAILABLE TO OUR STAFF. :
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REPORT OF THE
COMMISSIONER OF THE
LAND OFFICE

1890

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 : THE GENERAL ACCOUNTING OFFICE IS SUSPENDING ALL EXPENSE :
 : ACCOUNTS WHERE JURATS ARE EXECUTED FOR OUR EMPLOYEES BY CLERKS :
 : AUTHORIZED BY THE COLLECTOR OF CUSTOMS TO ADMINISTER OATHS. :
 : OFFICIALS OF THAT SERVICE ARE NOT PERMITTED TO ADMINISTER OATHS :
 : TO REIMBURSEMENT VOUCHERS OF EMPLOYEES OF OTHER BRANCHES OF THE :
 : GOVERNMENT SERVICE. (DIVISION OF CONTROL MEMO. NOVEMBER 12, 1930):
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L. A. JONES IN COMPANY WITH H. H. BENNETT OF THE BUREAU OF CHEMISTRY AND SOILS, AND PROFESSOR J. B. DAVIDSON AND DR. STEVENSON OF THE IOWA STATE COLLEGE INSPECTED A NUMBER OF FARMS IN SOUTHWESTERN IOWA, WITH A VIEW TO ESTABLISHING A SOIL EROSION EXPERIMENT STATION IN THAT LOCALITY. MR. JONES THEN JOINED MR. McCRORY AT BETHANY, MO., AND IN COMPANY WITH DR. A. G. McCALL AND H. H. BENNETT OF THE BUREAU OF CHEMISTRY AND SOILS, INSPECTED THE WORK AT THE BETHANY STATION WHERE C. K. SHEDD HAS CHARGE OF THE ENGINEERING INVESTIGATIONS.

FROM THAT POINT THE DEPARTMENT REPRESENTATIVES WENT TO TEXAS WHERE IN COMPANY WITH REPRESENTATIVES OF THE TEXAS EXPERIMENT STATION, THE WORK IN PROGRESS AT TYLER, TEMPLE, AND SPUR, TEXAS, WAS INSPECTED.

WHILE IN TEXAS MR. McCRORY WENT TO WACO, TEXAS, WHERE HE SAW A DEMONSTRATION OF THE NEW TYPE OF COTTON GIN DEVELOPED BY GARNER BROTHERS. FROM THERE HE WENT TO HOUMA, LA., TO INSPECT THE WORK AT THAT POINT.

MR. JONES ALSO INSPECTED THE DRAINAGE CONDITIONS EXISTING ON A CONSIDERABLE AREA OF LAND NEAR CHILLICOTHE, TEXAS, WHERE SEEPAGE WATER IS CAUSING CONCENTRATION OF SALTS IN THE SURFACE SOIL. THE TEXAS EXPERIMENT STATION LOCATED AT IOWA PARK, NEAR WICHITA FALLS, TEXAS, WAS INSPECTED WITH A VIEW TO PLANNING A DRAINAGE SYSTEM TO AVOID SIMILAR CONDITIONS AT THAT PLACE.

M. A. R. KELLEY WILL ATTEND THE MEETING OF THE AMERICAN SOCIETY OF ANIMAL PRODUCTION, AT CHICAGO, ON NOVEMBER 29. MR. KELLEY IS ON THE VENTILATION RESEARCH COMMITTEE OF THAT SOCIETY. WHILE IN CHICAGO HE WILL ALSO ATTEND THE STRUCTURES DIVISION OF THE A.S.A.E. ON DECEMBER 2 AND 3, AND WILL DELIVER AN ILLUSTRATED TALK ENTITLED "TEN THOUSAND MILES THROUGH THE CORN BELT," IN WHICH HE WILL GIVE SOME OF THE RESULTS OF HIS RECENT INVESTIGATION OF THE STORAGE OF CORN.

MR. KELLEY WILL LEAVE SOON FOR THE BROOKHILL DAIRY FARM IN GENESEE, WISC., WHERE HE WILL SPEND THE WINTER ON A COOPERATIVE PROJECT TO DETERMINE THE EFFECT OF TEMPERATURE ON MILK PRODUCTION AND ITS RELATION TO VENTILATION. THIS WORK WILL BE IN COOPERATION WITH THE ENGINEERING EXPERIMENT STATION OF THE UNIVERSITY OF WISCONSIN.

W. M. HURST WILL ALSO ATTEND THE A.S.A.E. MEETING AT CHICAGO, AND LEAD A DISCUSSION ON "RESULTS OF RECENT EXPERIMENTS IN ARTIFICIAL DRYING OF GRAIN."

S. P. LYLE VISITED THE PENNSYLVANIA EXPERIMENT STATION RECENTLY WHERE HE CONFERRED WITH DIRECTOR McDOWELL AND EXTENSION AGRICULTURAL ENGINEER J. R. HASWELL. HE ALSO VISITED VARIOUS OTHER POINTS IN

PENNSYLVANIA TO INSPECT EXTENSION WORK IN PROGRESS IN THAT STATE. HE THEN WENT TO ITHACA, N. Y. IN COMPANY WITH H. W. HOCHBAUM, FIELD AGENT OF THE EXTENSION SERVICE IN THE EASTERN STATES, TO CONFER WITH EXTENSION AGRICULTURAL ENGINEER A. M. GOODMAN, IN THE FORMULATION OF A NEW YORK STATE PROJECT IN BARN VENTILATION.

MR. LYLE HAS ATTENDED ALL OF THE SESSIONS OF THE LAND GRANT COLLEGE ASSOCIATION, WHICH MET IN WASHINGTON NOVEMBER 17 TO 19, AND ALSO THE EXTENSION SECTION OF THE AMERICAN SOCIETY OF AGRONOMY, TO HEAR THEIR SYMPOSIUM ON AN EXTENSION PROGRAM FOR CONTROL OF SOIL EROSION.

W. M. HURST HAS FINISHED HIS RICE DRYING EXPERIMENTS AT DE WITTE, ARK. HE HAS GONE TO THE IBERIA LIVESTOCK FARM TO SUPERVISE THE ERECTION OF THE FORAGE DRYING EXPERIMENT PLANT TO BE CONDUCTED IN COOPERATION WITH THE BUREAU OF ANIMAL HUSBANDRY, B. A. I., AND THE DIVISION OF FORAGE CROPS, B. P. I. B. O. CHILDS CAME OVER FROM HOUMA, LA. FOR A FEW DAYS TO HELP GET THIS PLANT STARTED.

W. R. HUMPHRIES HAS COMPLETED THE RICE DRYING EXPERIMENTS NEAR BEAUMONT, TEXAS, AND HAS RETURNED TO THE WASHINGTON OFFICE WHERE HE IS NOW ENGAGED IN TABULATING DATA IN CONNECTION WITH THE FARM POWER SURVEY ON WHICH HE HAS BEEN ENGAGED THE PAST SUMMER.

G. R. BOYD SENT IN A DRAFT FOR HIS PORTION OF THE PRELIMINARY REPORT OF THE APPRAISAL OF LANDS TO BE INCLUDED IN THE REPORT OF THE WAR DEPARTMENT ON FLOOD PROTECTION OF THE MISSISSIPPI VALLEY. MR. BOYD AND O. M. PAGE ARE AT PRESENT ENGAGED ON FURTHER FIELD WORK IN CONNECTION WITH THIS PROJECT.

W. W. McLAUGHLIN AND DIRECTOR J. T. JARDINE OF THE OREGON AGRICULTURAL EXPERIMENT STATION AT MEDFORD, OREGON, MET WITH THE COUNTY COURT AT MEDFORD, OREGON, AND REPRESENTATIVES OF THE IRRIGATORS OF THE ROGUE RIVER VALLEY TO DISCUSS THE CONTINUATION OF INTENSIVE IRRIGATION RESEARCH STUDIES FOR A PERIOD OF NOT LESS THAN FIVE YEARS. IT WAS DECIDED THAT THE COUNTY AND STATE AGRICULTURAL COLLEGE WOULD PURCHASE AT A COST OF NOT TO EXCEED \$25,000, A SUITABLE TRACT OF LAND TO BE USED FOR COOPERATIVE IRRIGATION AND RELATED INVESTIGATIONS. THE RESEARCH STUDIES WILL BE FINANCED JOINTLY BY THE OREGON AGRICULTURAL COLLEGE AND THIS DIVISION.

A. T. MITCHELSON PREPARED A PAPER ON THE SUBJECT OF "WATER-SPREADING IN SOUTHERN CALIFORNIA," FOR PRESENTATION AT A MEETING OF THE SANITATION GROUP, LOS ANGELES SECTION, AMERICAN SOCIETY OF CIVIL ENGINEERS, OCTOBER 29. THIS PAPER CONTAINED A REVIEW OF THE WORK CARRIED ON BY OUR DIVISION DURING THE PAST SEASON ALONG THE LINE OF WATER-SPREADING, WHICH HAS ATTRACTED CONSIDERABLE INTEREST ON THE PART OF BOTH ENGINEERS, AND RESIDENTS OF THE VICINITY IN WHICH THE EXPERIMENTS WERE CARRIED ON.

THE PROJECT WAS STARTED IN ORDER TO GATHER INFORMATION ON THE RATE OF PERCOLATION ON OTHER THAN STREAMBED SOILS; THE EFFECT OF VEGETATION ON THE RATE OF PERCOLATION; THE EFFECT OF THE ROOTS OF VEGETATION ON THE SEALING-OFF OF SPREADING AREAS BY THE APPLICATION OF SILT-LADEN WATER; THE EFFECT OF TEMPERATURE ON RATE OF PERCOLATION; AND THE EFFECT OF A RISING WATER TABLE ON THE PERCOLATION RATE.

FOR THIS PURPOSE AN EXPERIMENTAL PLOT APPROXIMATELY 80 x 200 FEET IN AREA WAS SECURED AT THE MOUTH OF SAN GABRIEL CANYON, IN WHAT IS CALLED THE SAN GABRIEL WASH. THE PLOT HAS A SANDY SOIL, BUT IS ABOVE THE RIVER BED AT A POINT WHERE THERE IS A LUXURIANT GROWTH OF CLOVER, GRASS AND WILLOWS. IT IS PARTICULARLY ADAPTABLE BECAUSE IT WAS DESIRED TO OBTAIN A PLOT WHERE COMPLETE WETTING OF THE SURFACE COULD BE ACCOMPLISHED WITHOUT RESORTING TO LEVELLING, THEREBY DISTURBING THE VEGETATION. IT WAS THOUGHT THAT BY MAINTAINING A NATURAL AND HEALTHY GROWTH ON THE SURFACE, THE ROOT ACTION OF THE PLANTS WOULD TEND TO KEEP THE SOIL OPEN, PREVENT SEALING-OFF BY SILT DEPOSITS AND ACCORDINGLY FACILITATE PERCOLATION.

GROUND WATER LEVELS WERE TAKEN DURING THE PAST SEASON FROM A WELL ABOUT 1,000 FEET SOUTH OF THE PLOT. THE RESULTS OF THE FIRST SEASON'S WORK SHOWED AN AVERAGE DAILY PERCOLATION RATE OF 3.98 ACRE-Feet PER ACRE. THE GROSS AMOUNT OF WATER APPLIED FOR THE ENTIRE SEASON (PER ACRE BASIS) WAS 398.0 ACRE-Feet PER ACRE.

R. L. PARSHALL IS WORKING ON THE DEVELOPMENT OF A VORTEX SAND TRAP AT THE BELLVUE LABORATORY. THIS TRAP CONSISTS OF A TUBE OPEN AT THE TOP IN CONICAL SHAPE HAVING A DIAMETER OF 10 INCHES AT THE OUTLET AND 7 INCHES AT THE BACK OR UPSTREAM END, THIS TUBE BEING SET AT AN ANGLE OF APPROXIMATELY 45 DEGREES TO THE AXIS OF THE CHANNEL. IN ONE FORM, THE UPPER EDGE OR LIP OF THE TRAP WAS SET HORIZONTALLY, THUS GIVING A BOTTOM SLOPE IN THE TRAP OF ABOUT 3 INCHES IN ITS LENGTH OF ABOUT 8 FEET. APPARATUS WAS IMPROVISED TO DETERMINE THE APPROXIMATE TRANSLATION VELOCITY WITHIN THE TUBE AS RELATED TO THE MEAN VELOCITY OF THE WATER IN THE APPROACH CHANNEL. ALSO, THE RATE OF ROTATION OF THE MASS OF WATER WITHIN THE TRAP HAS BEEN CORRELATED WITH THE MEAN VELOCITY IN THE APPROACH CHANNEL. AN ANALYSIS OF THESE DATA HAS NOT YET BEEN MADE, BUT IT APPEARS THAT THE TRANSLATION VELOCITY IS APPROXIMATELY THREE-FOURTHS THAT OF THE MEAN VELOCITY OF THE CHANNEL. AS TO THE ROTATION WITHIN THE TRAP, IT HAS BEEN OBSERVED THAT THIS WATER AT THE CORE OF THE VORTEX REVOLVED AT MORE THAN 200 R.P.M. FOR A MEAN VELOCITY IN THE CHANNEL OF ABOUT 2.75 FEET PER SECOND. BY USING SUITABLE BLOCKS OR BAFFLES PLACED DOWNSTREAM FROM THE EDGE OR LIP OF THE TRAP FOR VELOCITIES OF ABOUT $2\frac{1}{2}$ FEET PER SECOND, COBBLE STONES WEIGHING AS MUCH AS 3 POUNDS HAVE BEEN READILY AGITATED. GRAVEL AS LARGE AS HENS' EGGS WAS OBSERVED TO BE LIFTED OFF THE BOTTOM OF THE TRAP AND REVOLVED.

A. A. YOUNG WILL ASSIST MR. MITCHELSON IN WATER-SPREADING STUDIES IN SOUTHERN CALIFORNIA DURING THE COMING SEASON. TOGETHER THEY MADE A TRIP OVER THE SPREADING GROUNDS ON THE OUTWASH CONES OF THE SAN BERNARDINO MOUNTAINS DURING THE LATTER PART OF OCTOBER, FOR THE PURPOSE OF PLANNING THE WORK AND LAYING OUT ADDITIONAL EXPERIMENTS.

CARL ROHWER HAS SPENT THE PAST MONTH SUPERINTENDING THE CONSTRUCTION OF A DAM AT CHEYENNE, WYOMING, FOR USE OF THE EXPERIMENT STATION OF THE BUREAU OF PLANT INDUSTRY.

L.T. JESSUP HAS COMPLETED HIS SEASON'S FIELD STUDIES IN NORTHERN IDAHO IN CONNECTION WITH AN INTERNATIONAL POWER PROJECT IN ITS RELATION TO AGRICULTURE. PROF. GEORGE D. CLYDE OF THE IRRIGATION DEPARTMENT

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OF THE UTAH AGRICULTURAL COLLEGE, ASSISTED MR. JESSUP IN THE FIELD WORK.

C. E. RAMSER HAS SUBMITTED THE FOLLOWING REGARDING THE SOIL EROSION WORK UNDER HIS CHARGE:

S. H. McCrory, L. A. Jones, C. E. Ramser, and R. W. Baird attended a conference at Tyler, Tex. on Nov. 3 where representatives of the Bureau of Public Roads, Bureau of Chemistry and Soils, and the Texas Agri. Experiment Station inspected the Tyler farm and adopted a program of experiments on soil erosion for this farm. After the meeting a trip was made to the Experiment Farms at Temple and Spur, Tex., where soil erosion experiments were inspected. R. A. Norton also made the trip to Spur.

E. E. Stewart has been transferred temporarily from Guthrie to Bethany where he reported on Nov. 3 to assist Mr. Shedd with his construction program. The terracing work on this farm is being pushed with a view to completing as much as possible before freezing weather sets in.

Henry O. Hill reported at Temple on Oct. 21, to assist Mr. Norton with the installation of Parshall measuring flumes and silt samplers on the experimental terraces. He will leave Temple on Nov. 16 and report to Mr. Baird at Tyler who has started work on the construction of the experimental terraces on the Tyler farm.

C. E. Ramser visited the Hays Experimental Farm on Oct. 17 to inspect the experimental work and confer with Mr. Drake on the possibility of establishing gaging stations on a number of pasture and cultivated watersheds outside of the farm.

R. R. Drake reports that the wheat is in fine condition on the Hays farm and that very little wheat was damaged in the channels of the level terraces due to the October rains.

P. C. McGrew reports that thirty-one plots have been planned for the Soil Erosion Experimental Farm at Pullman, Wash. to conduct experiments on deep tillage, effect of stubble burning, plowing with one-way disc plow, and spring plowing, the standard for comparison being fall plowing with a moldboard plow. The crop next season will be 20 acres of spring wheat and 78 acres of peas, with 100 acres fallow. The fall plowing is about one-half completed.

R. B. Gray attended the North Atlantic Section of A.S.A.E. Oct. 16 to 18, where he gave a paper on the "Use of Machinery in Corn Borer Control." He spent October 20 at South Norwalk, Conn. conferring with officials of the P.Q.C.A. concerning cooperative work in New England and office and shop space for some of the Toledo Engineers who will be moved East early next year.

He spent Oct. 29 at a farm machinery exhibit and demonstration near Des Moines, Iowa, where a Gleaner corn combine was demonstrated.

R. M. Merrill spent the week of Oct. 27 to Nov. 1 in the New England area with Frank Irons attending plowing demonstrations.

Mr. Irons returned Nov. 8 to Toledo from New England where he has been supervising plowing and binder low-cutting demonstrations for corn borer control.

November 12 the Toledo Engineers attended the Corn Harvest Field Day near Dola, Ohio. Here on the farm of Ira Marshall, the world's champion corn grower, seven 1 and 2-row corn pickers were demonstrated by the manufacturers. The Toledo Engineers demonstrated several types of corn borer control machinery. Corn binder with stationary-knife low-cutting attachment, a four-bar side-delivery rake, the two-row sled stalk shaver and the 3-row cultivator shaver. In spite of the continuous drizzle the machines performed quite satisfactorily and some 5,000 farmers were in attendance.

